



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,832	12/17/2003	Hee-Kwan . Son	8947-000063/US	5440
30593	7590	10/15/2007		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER NGO, CHUONG D	
			ART UNIT	PAPER NUMBER
			2193	
			MAIL DATE	DELIVERY MODE
			10/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/736,832

Applicant(s)

SON, HEE-KWAN

Examiner

Chuong D. Ngo

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 1-7, 42-50 and 56-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-41 and 51-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> pages. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election with traverse of Group II, claims 8-41 and 51-55 in the reply filed on 07/23/2007 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application can be performed without serious burden. This is not found persuasive because each groups of claims is clearly directed to a different and distinct invention, and each contains different features from the others. Thus, there would be a serious burden to performed search and examination on all the Group of invention.

The requirement is still deemed proper and is therefore made FINAL. Claims 1-7,42-50 and 56-61 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

2. Claims 20,22,25,26 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 20 and 22, the limitation of "full compressor" and "reduced compressor" are unclear.

As per claim 25, the recitation "the full compressor" lacks a proper antecedent basis. The claim appears to depend on claim 20.

As per claim 29, the recitation "the carry save mode" and "the carry propagate mode" lack a proper antecedents basis. The claim appears to depend on claim 28.

Art Unit: 2193

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 8-41 and 51-55 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 8-41 and 51-55 are directed to an inventions that merely perform calculations and manipulations of data. In order for such a claimed invention to be statutory, the claimed invention must accomplish a practical application. That is the claimed invention must transform an article or physical object to a different state or thing, or produce a useful, concrete and tangible result. See *State Street*, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Also see “Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility”, OG Notices: 22 November 2005. It is clear from the claims that the invention merely performs calculations and manipulations of data. The claimed invention does perform any physical transformation. The inputs are numbers and the output is also a number. Further, the result of the invention is a mere numerical value without a practical application recited in the claims to make it a real world result. Therefore, the result is not useful, concrete and tangible. Thus, the claimed inventions are directed to non-statutory subject matter as the claimed inventions fail to accomplish a practical application. Further, since the claims appear to cover every substantial practical application, they are also directed to a preemption of the claimed manipulation and calculation of data.

Art Unit: 2193

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-17,23,27 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. ("New VLSI Architectures of RSA Public-Key Cryptosystem")

As per claim 8-10, Wang et al discloses in figure 5 an accumulator including a carry save adder inherently having plurality of compressors (each processor corresponding to a bit slice of the carry save adder for processing bits at a corresponding significant bit position) for operating in a carry save mode, each of the plurality of compressors receiving a multiple modulus (a multiple of N from MUXs), a partial product (a multiple of B from MUXs) , a corresponding current sum and a corresponding current carry (the feedback from the carry save adder), and producing a corresponding next sum and a corresponding next carry (the output from the carry save adder). It is noted that Wang et al does not specifically disclose a sum register and a carry register as claimed. However, since Wang et al. discloses the accumulator in figure 5 in an iterative and pipelined structure, and in order to enable a pipelined process, it would have been obvious to provide the accumulator with pipeline registers for receiving the carry and sum outputted from the carry save adder and feed them back to the carry save adder as corresponding updated current carry and sum as claimed.

As per claims 11-17 and 23 since Wang et al discloses in figure 5 the accumulator also accumulating Booth partial product, it would have been obvious to a person of ordinary skill in

Art Unit: 2193

the art to have the number of compressor, the bit length of the multiplicand, and the bit length of the multiplier as claimed.

As per claim 27 and 51-53 it would have been obvious to provide the accumulator of Wang et al with a carry propagate adder in order to convert the final carry and sum to a normal number.

As per claims 54, at least the signals to the MUXs are the switching signal.

7. Claims 19-22,25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. ("New VLSI Architectures of RSA Public-Key Cryptosystem") as applied to the claims above, and further in view of Peh et al (5,796,645).

As per claims 19-22, it is noted that Wang et al does not disclose a compensating word to be added in the accumulation as claimed. However, Peh et al. discloses in col. 4, lines 29-60, an addition of compensating word (the "binary 1", lines 52 and 57) for reducing the time that is required to perform two's complements of Booth partial products by not directly computing the two complements. Thus, it would have been obvious to a person of ordinary skill in the art to provide employ a compensating word in the accumulations in order to reduce the processing time.

As per claim 25, it would have been obvious to use three full adder in a compressor that involves the compensating word in order to compress 5 input bits.

As per claim 26, it would have been obvious to use a half adder and two full adder in a compressor that does not involve compensating word since it only compresses 4 input bits.

Art Unit: 2193

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (571) 272-3731. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuong D Ngo/
Primary Examiner
Art Unit 2193

09/27/2007